

SEQUENCE LISTING

<110> MATSUMOTO, KAZUYA
 KAZUNO, YASUSHI
 HIGASHIMURA, NORIKAZU
 OHSHIMA, TOSHIHISA
 SAKURABA, HARUHIKO

<120> PROCESS FOR PRODUCING CHIRAL HYDROXYALDEHYDE COMPOUNDS

<130> 1034232-000045

<140>
 <141>

<150> PCT/JP2005/005719
 <151> 2005-03-28

<150> JP 2004-095263
 <151> 2004-03-29

<160> 10

<170> PatentIn Ver. 3.3

<210> 1
 <211> 747
 <212> DNA
 <213> Thermotoga maritima

<220>
 <221> CDS
 <222> (1)..(744)

<400> 1
 atg ata gag tac agg att gag gag gca gta gcg aag tac aga gag ttc 48
 Met Ile Glu Tyr Arg Ile Glu Glu Ala Val Ala Lys Tyr Arg Glu Phe
 1 5 10 15
 tac gaa ttc aag ccc gtc aga gaa agc gca ggt att gaa gat gtg aaa 96
 Tyr Glu Phe Lys Pro Val Arg Glu Ser Ala Gly Ile Glu Asp Val Lys
 20 25 30
 agt gct ata gag cac acg aat ctg aaa ccg ttt gcc aca cca gac gat 144
 Ser Ala Ile Glu His Thr Asn Leu Lys Pro Phe Ala Thr Pro Asp Asp
 35 40 45
 ata aaa aaa ctc tgt ctt gaa gca agg gaa aat cgt ttc cat gga gtc 192
 Ile Lys Lys Leu Cys Leu Glu Ala Arg Glu Asn Arg Phe His Gly Val
 50 55 60
 tgt gtg aat ccg tgt tat gtg aaa ctg gct cgt gaa gaa ctc gaa gga 240
 Cys Val Asn Pro Cys Tyr Val Lys Leu Ala Arg Glu Glu Leu Glu Gly
 65 70 75 80
 acc gat gtg aaa gtc gtc acc gtt gtt ggt ttt cca ctg gga gcg aac 288
 Thr Asp Val Lys Val Val Thr Val Val Gly Phe Pro Leu Gly Ala Asn
 85 90 95

gaa act cgg acg aaa gcc cat gag gcg att ttc gct gtt gag agt gga 336
 Glu Thr Arg Thr Lys Ala His Glu Ala Ile Phe Ala Val Glu Ser Gly
 100 105 110

gcc gat gag atc gat atg gtc atc aac gtt ggc atg ctc aag gca aag 384
 Ala Asp Glu Ile Asp Met Val Ile Asn Val Gly Met Leu Lys Ala Lys
 115 120 125

gag tgg gag tac gtt tac gag gat ata aga agt gtt gtc gaa tcg gtg 432
 Glu Trp Glu Tyr Val Tyr Glu Asp Ile Arg Ser Val Val Glu Ser Val
 130 135 140

aaa gga aaa gtt gtg aag gtg atc atc gaa acg tgc tat ctg gat acg 480
 Lys Gly Lys Val Val Lys Val Ile Ile Glu Thr Cys Tyr Leu Asp Thr
 145 150 155 160

gaa gag aag ata gcg gcg tgt gtc att tcc aaa ctt gct gga gct cat 528
 Glu Glu Lys Ile Ala Ala Cys Val Ile Ser Lys Leu Ala Gly Ala His
 165 170 175

ttc gtg aag act tcc acg gga ttt gga aca gga ggg gcg acc gca gaa 576
 Phe Val Lys Thr Ser Thr Gly Phe Gly Thr Gly Gly Ala Thr Ala Glu
 180 185 190

gac gtt cat ctc atg aaa tgg atc gtg gga gat gag atg ggt gta aaa 624
 Asp Val His Leu Met Lys Trp Ile Val Gly Asp Glu Met Gly Val Lys
 195 200 205

gct tcc gga ggg atc aga acc ttc gag gac gct gtt aaa atg atc atg 672
 Ala Ser Gly Gly Ile Arg Thr Phe Glu Asp Ala Val Lys Met Ile Met
 210 215 220

tac ggt gct gat aga ata gga acg agt tcg gga gtt aag atc gtt cag 720
 Tyr Gly Ala Asp Arg Ile Gly Thr Ser Ser Gly Val Lys Ile Val Gln
 225 230 235 240

ggg gga gaa gag aga tat gga ggt tga 747
 Gly Gly Glu Glu Arg Tyr Gly Gly
 245

<210> 2

<211> 248

<212> PRT

<213> Thermotoga maritima

<400> 2

Met Ile Glu Tyr Arg Ile Glu Glu Ala Val Ala Lys Tyr Arg Glu Phe
1 5 10 15

Tyr Glu Phe Lys Pro Val Arg Glu Ser Ala Gly Ile Glu Asp Val Lys
20 25 30

Ser Ala Ile Glu His Thr Asn Leu Lys Pro Phe Ala Thr Pro Asp Asp
35 40 45

```
<210> 3
<211> 681
<212> DNA
<213> Pyrobaculum aerophilum

<220>
<221> CDS
<222> (1)..(678)
```

| | | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| <400> 3 | | | | | | | | | | | | | | | | |
| atg | ata | cat | tta | gta | gac | tac | gcg | ctt | ctc | aag | ccg | tat | ctc | aca | gta | 48 |
| Met | Ile | His | Leu | Val | Asp | Tyr | Ala | Leu | Leu | Lys | Pro | Tyr | Leu | Thr | Val | |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | | | | | | | | | | | | | | | | |
| gat | gaa | gca | gtc | gcc | ggg | gct | cgc | aag | gcg | gag | gag | ctg | ggc | gtc | gcg | 96 |
| Asp | Glu | Ala | Val | Ala | Gly | Ala | Arg | Lys | Ala | Glu | Glu | Leu | Gly | Val | Ala | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |

| | |
|---|-----|
| gcg tat tgc gta aat ccc ata tac gcc cct gtt gtt cgg cct ttg ttg | 144 |
| Ala Tyr Cys Val Asn Pro Ile Tyr Ala Pro Val Val Arg Pro Leu Leu | |
| 35 40 45 | |
| cgg aaa gta aag ctc tgc gta gtg gcg gac ttc ccc ttt ggg gcc ttg | 192 |
| Arg Lys Val Lys Leu Cys Val Val Ala Asp Phe Pro Phe Gly Ala Leu | |
| 50 55 60 | |
| cca acg gcc agc aga att gcc ttg gtt tct agg ctt gct gaa gtg gca | 240 |
| Pro Thr Ala Ser Arg Ile Ala Leu Val Ser Arg Leu Ala Glu Val Ala | |
| 65 70 75 80 | |
| gat gag ata gac gtg gtg gcg cct ata ggc ctc gtg aaa tcg cgg agg | 288 |
| Asp Glu Ile Asp Val Val Ala Pro Ile Gly Leu Val Lys Ser Arg Arg | |
| 85 90 95 | |
| tgg gcc gag gtg aga agg gac tta ata agc gtt gtg ggt gcc gca ggc | 336 |
| Trp Ala Glu Val Arg Arg Asp Leu Ile Ser Val Val Gly Ala Ala Gly | |
| 100 105 110 | |
| ggg aga gtg gta aag gta atc aca gag gag cct tat cta agg gat gag | 384 |
| Gly Arg Val Val Lys Val Ile Thr Glu Glu Pro Tyr Leu Arg Asp Glu | |
| 115 120 125 | |
| gag agg tat acg ctt tac gac att att gca gag gct ggg gcc cac ttt | 432 |
| Glu Arg Tyr Thr Leu Tyr Asp Ile Ile Ala Glu Ala Gly Ala His Phe | |
| 130 135 140 | |
| ata aaa agc tcc act gga ttc gcc gaa gag gcc tac gcc gcc aga cag | 480 |
| Ile Lys Ser Ser Thr Gly Phe Ala Glu Glu Ala Tyr Ala Ala Arg Gln | |
| 145 150 155 160 | |
| gga aat cct gta cac tca acg ccg gag agg gcg gcg gca att gcc cgc | 528 |
| Gly Asn Pro Val His Ser Thr Pro Glu Arg Ala Ala Ala Ile Ala Arg | |
| 165 170 175 | |
| tac ata aaa gag aag ggg tat aga ctg ggg gtg aaa atg gcg ggg ggg | 576 |
| Tyr Ile Lys Glu Lys Gly Tyr Arg Leu Gly Val Lys Met Ala Gly Gly | |
| 180 185 190 | |
| att agg aca agg gag cag gca aag gcc att gtt gac gcc att gga tgg | 624 |
| Ile Arg Thr Arg Glu Gln Ala Lys Ala Ile Val Asp Ala Ile Gly Trp | |
| 195 200 205 | |
| ggc gag gac cca gcc cgc gtc agg ctg ggg acg tcc acc cca gag gct | 672 |
| Gly Glu Asp Pro Ala Arg Val Arg Leu Gly Thr Ser Thr Pro Glu Ala | |
| 210 215 220 | |
| ctt cta tag | 681 |
| Leu Leu | |
| 225 | |

<210> 4

<211> 226

<212> PRT

<213> Pyrobaculum aerophilum

<400> 4

Met Ile His Leu Val Asp Tyr Ala Leu Leu Lys Pro Tyr Leu Thr Val
 1 5 10 15
 Asp Glu Ala Val Ala Gly Ala Arg Lys Ala Glu Glu Leu Gly Val Ala
 20 25 30
 Ala Tyr Cys Val Asn Pro Ile Tyr Ala Pro Val Val Arg Pro Leu Leu
 35 40 45
 Arg Lys Val Lys Leu Cys Val Val Ala Asp Phe Pro Phe Gly Ala Leu
 50 55 60
 Pro Thr Ala Ser Arg Ile Ala Leu Val Ser Arg Leu Ala Glu Val Ala
 65 70 75 80
 Asp Glu Ile Asp Val Val Ala Pro Ile Gly Leu Val Lys Ser Arg Arg
 85 90 95
 Trp Ala Glu Val Arg Arg Asp Leu Ile Ser Val Val Gly Ala Ala Gly
 100 105 110
 Gly Arg Val Val Lys Val Ile Thr Glu Glu Pro Tyr Leu Arg Asp Glu
 115 120 125
 Glu Arg Tyr Thr Leu Tyr Asp Ile Ile Ala Glu Ala Gly Ala His Phe
 130 135 140
 Ile Lys Ser Ser Thr Gly Phe Ala Glu Glu Ala Tyr Ala Ala Arg Gln
 145 150 155 160
 Gly Asn Pro Val His Ser Thr Pro Glu Arg Ala Ala Ala Ile Ala Arg
 165 170 175
 Tyr Ile Lys Glu Lys Gly Tyr Arg Leu Gly Val Lys Met Ala Gly Gly
 180 185 190
 Ile Arg Thr Arg Glu Gln Ala Lys Ala Ile Val Asp Ala Ile Gly Trp
 195 200 205
 Gly Glu Asp Pro Ala Arg Val Arg Leu Gly Thr Ser Thr Pro Glu Ala
 210 215 220
 Leu Leu
 225

<210> 5

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 Primer

<400> 5
tatatcatat gatagagtac aggattgagg 30

<210> 6
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 6
taatggatcc tcaacctcca tatctctctt 30

<210> 7
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 7
tatatcatat gatacattta gtagactacg 30

<210> 8
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 8
taatggatcc ctatagaaga gcctctgggg 30

<210> 9
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Primer

<400> 9
tatactatat gactgatctg aaagcaagca 30

<210> 10

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Primer

<400> 10

taatggatcc ttagtagctg ctggcgctct

30